

U.S. Patent Application Serial No. 10/506,671

Amendment filed June 8, 2007

Reply to OA dated March 8, 2007

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 Claim 1 (currently amended): A pipe joint comprising a first and a second tubular joint
2 member of synthetic resin, a synthetic resin gasket interposed between abutting portions of the joint
3 members and screw means for joining the joint members, the pipe joint being characterized in that
4 the first joint member is provided in an abutting end face thereof with an annular recessed portion
5 having an opening remaining therein with the gasket entirely fitted therein, the second joint member
6 being provided with an annular ridge on an abutting end face thereof, the ridge being fitted in the
7 opening of the recessed portion with the gasket fitted in the recessed portion, an outer surface of the
8 ridge of the second joint member being pressed against an inner surface of the recessed portion of
9 the first joint member with the gasket interposed between the surfaces in intimate contact therewith
10 approximately over the entire surface areas when the pipe joint is properly tightened up, a portion
11 of the abutting end face of the first joint member positioned radially inwardly of the recessed portion
12 being then in intimate contact with a portion of the abutting end face of the second joint member
13 positioned radially inwardly of the ridge approximately over the entire surface areas thereof, a
14 portion of the abutting end face of the first joint member positioned radially outwardly of the

15 recessed portion being then in intimate contact with a portion of the abutting end face of the second
16 joint member positioned radially outwardly of the ridge approximately over the entire surface areas
17 thereof,

18 wherein when the pipe joint is manually tightened up, a first gap is present between the
19 portion of the abutting end face of the first joint member positioned radially inwardly of the recessed
20 portion and the portion of the abutting end face of the second joint member positioned radially
21 inwardly of the ridge, and a second gap greater than the first gap is present between the portion of
22 the abutting end face of the first joint member positioned radially outwardly of the recessed portion
23 and the portion of the abutting end face of the second joint member positioned radially outwardly
24 of the ridge.

1 Claim 2 (currently amended): A pipe joint comprising a first and a second tubular joint
2 member of synthetic resin, and screw means for joining the joint members, the pipe joint being
3 characterized in that the first joint member is provided with an annular recessed portion in an
4 abutting end face thereof, the second joint member being provided with an annular ridge on an
5 abutting end face thereof, the ridge of the second joint member being fitted in the recessed portion
6 of the first joint member, with an outer surface of the ridge in intimate contact with an inner surface
7 of the recessed portion approximately over the entire surface areas when the pipe joint is properly
8 tightened up, a portion of the abutting end face of the first joint member positioned radially inwardly
9 of the recessed portion being then in intimate contact with a portion of the abutting end face of the

10 second joint member positioned radially inwardly of the ridge approximately over the entire surface
11 areas thereof, a portion of the abutting end face of the first joint member positioned radially
12 outwardly of the recessed portion being then in intimate contact with a portion of the abutting end
13 face of the second joint member positioned radially outwardly of the ridge approximately over the
14 entire surface areas thereof,

15 wherein when the pipe joint is manually tightened up, a first gap is present between the
16 portion of the abutting end face of the first joint member positioned radially inwardly of the recessed
17 portion and the portion of the abutting end face of the second joint member positioned radially
18 inwardly of the ridge, and a second gap greater than the first gap is present between the portion of
19 the abutting end face of the first joint member positioned radially outwardly of the recessed portion
20 and the portion of the abutting end face of the second joint member positioned radially outwardly
21 of the ridge.

1 Claim 3 (currently amended): A pipe joint comprising a first and a second tubular joint
2 member of synthetic resin, a synthetic resin gasket interposed between abutting portions of the joint
3 members and screw means for joining the joint members, the pipe joint being characterized in that
4 each of the joint members is provided in an abutting end face thereof with an annular recessed
5 portion for forming a portion for accommodating the gasket therein when the joint members are
6 butted against each other, the gasket being in intimate contact with an inner surface of the recessed
7 portion of the first joint member approximately over the entire area thereof when the pipe joint is

8 properly tightened up, a surface portion of the gasket exposed from the same recessed portion being
9 then in intimate contact with an inner surface of the recessed portion of the second joint member
10 approximately over the entire area thereof, a portion of the abutting end face of the first joint member
11 positioned radially inwardly of the recessed portion thereof being then in intimate contact with a
12 portion of the abutting end face of the second joint member positioned radially inwardly of the
13 recessed portion thereof approximately over the entire surface areas thereof, a portion of the abutting
14 end face of the first joint member positioned radially outwardly of the recessed portion thereof being
15 then in intimate contact with a portion of the abutting end face of the second joint member
16 positioned radially outwardly of the recessed portion thereof approximately over the entire surface
17 areas thereof.

18 wherein when the pipe joint is manually tightened up, a first gap is present between the
19 portion of the abutting end face of the first joint member positioned radially inwardly of the recessed
20 portion thereof and the portion of the abutting end face of the second joint member positioned
21 radially inwardly of the recessed portion thereof, and a second gap greater than the first gap is
22 present between the portion of the abutting end face of the first joint member positioned radially
23 outwardly of the recessed portion thereof and the portion of the abutting end face of the second joint
24 member positioned radially outwardly of the recessed portion thereof.

1 Claim 4 (currently amended): A pipe joint comprising a first and a second tubular
2 joint member of synthetic resin, a synthetic resin gasket interposed between abutting portions of the

3 joint members and screw means for joining the joint members, the pipe joint being characterized in
4 that each of the joint members is provided in an abutting end face thereof with an annular recessed
5 portion for forming a portion for accommodating the gasket therein when the joint members are
6 butted against each other, the gasket being in intimate contact with an inner surface of the recessed
7 portion of the first joint member approximately over the entire area thereof when the pipe joint is
8 properly tightened up, a surface portion of the gasket exposed from the same recessed portion being
9 then in intimate contact with an inner surface of the recessed portion of the second joint member
10 approximately over the entire area thereof, a portion of the abutting end face of the first joint member
11 positioned radially inwardly of the recessed portion thereof being then in intimate contact with a
12 portion of the abutting end face of the second joint member positioned radially inwardly of the
13 recessed portion thereof approximately over the entire surface areas thereof, a portion of the abutting
14 end face of the first joint member positioned radially outwardly of the recessed portion thereof being
15 then in intimate contact with a portion of the abutting end face of the second joint member
16 positioned radially outwardly of the recessed portion thereof approximately over the entire surface
17 areas thereof,

18 ~~A pipe joint according to claim 3 which is~~ characterized in that the portion of the abutting
19 end face of the first joint member positioned radially inwardly of the recessed portion thereof axially
20 projects beyond the radially outward portion thereof, the portion of the abutting end face of the
21 second joint member radially inward of the recessed portion thereof axially projecting beyond the
22 radially outward portion thereof.

1 Claim 5 (currently amended): A pipe joint comprising a first and a second tubular
2 joint member of synthetic resin, a synthetic resin gasket interposed between abutting portions of the
3 joint members and screw means for joining the joint members, the pipe joint being characterized in
4 that each of the joint members is provided in an abutting end face thereof with an annular recessed
5 portion for forming a portion for accommodating the gasket therein when the joint members are
6 butted against each other, the gasket being in intimate contact with an inner surface of the recessed
7 portion of the first joint member approximately over the entire area thereof when the pipe joint is
8 properly tightened up, a surface portion of the gasket exposed from the same recessed portion being
9 then in intimate contact with an inner surface of the recessed portion of the second joint member
10 approximately over the entire area thereof, a portion of the abutting end face of the first joint member
11 positioned radially inwardly of the recessed portion thereof being then in intimate contact with a
12 portion of the abutting end face of the second joint member positioned radially inwardly of the
13 recessed portion thereof approximately over the entire surface areas thereof, a portion of the abutting
14 end face of the first joint member positioned radially outwardly of the recessed portion thereof being
15 then in intimate contact with a portion of the abutting end face of the second joint member
16 positioned radially outwardly of the recessed portion thereof approximately over the entire surface
17 areas thereof,

18 ~~A pipe joint according to claim 3 which is~~ characterized in that the portion of the abutting
19 end face of the first joint member positioned radially inwardly of the recessed portion thereof ~~[[is]]~~

20 being flush with the bottom surface of the recessed portion thereof, the radially outward portion of
21 the first joint member axially projecting beyond the bottom surface of the recessed portion thereof,
22 the portion of the abutting end face of the second joint member radially inward of the recessed
23 portion thereof axially projecting beyond the bottom surface of the recessed portion thereof, the
24 radially outward portion of the second joint member being axially recessed from the bottom surface
25 of the recessed portion thereof.

1 Claim 6 (currently amended): A pipe joint comprising a first and a second tubular joint
2 member of synthetic resin, a synthetic resin gasket interposed between abutting portions of the joint
3 members and screw means for joining the joint members, the pipe joint being characterized in that
4 each of the joint members is provided in an abutting end face thereof with an annular recessed
5 portion for forming a portion for accommodating the gasket therein when the joint members are
6 butted against each other, the gasket being in intimate contact with an inner surface of the recessed
7 portion of the first joint member approximately over the entire area thereof when the pipe joint is
8 properly tightened up, a surface portion of the gasket exposed from the same recessed portion being
9 then in intimate contact with an inner surface of the recessed portion of the second joint member
10 approximately over the entire area thereof, a portion of the abutting end face of the first joint member
11 positioned radially inwardly of the recessed portion thereof being then in intimate contact with a
12 portion of the abutting end face of the second joint member positioned radially inwardly of the
13 recessed portion thereof approximately over the entire surface areas thereof, a portion of the abutting

14 end face of the first joint member positioned radially outwardly of the recessed portion thereof being
15 then in intimate contact with a portion of the abutting end face of the second joint member
16 positioned radially outwardly of the recessed portion thereof approximately over the entire surface
17 areas thereof.

18 ~~A pipe joint according to claim 3~~ which is characterized in that the portion of the abutting
19 end face of the first joint member positioned radially inwardly of the recessed portion thereof is
20 recessed from the bottom surface of the recessed portion thereof, the radially outward portion of the
21 first joint member axially projecting beyond the bottom surface of the recessed portion thereof, the
22 portion of the abutting end face of the second joint member radially inward of the recessed portion
23 thereof axially projecting beyond the bottom surface of the recessed portion thereof, the radially
24 outward portion of the second joint member being axially recessed from the bottom surface of the
25 recessed portion thereof.

Claim 7 (canceled).

1 Claim 8 (currently amended): A pipe joint according to any one of claims ~~[[3]]~~ 4 to 6
2 wherein when the pipe joint is manually tightened up, a first gap is present between the portion of
3 the abutting end face of the first joint member positioned radially inwardly of the recessed portion
4 thereof and the portion of the abutting end face of the second joint member positioned radially
5 inwardly of the recessed portion thereof, and a second gap greater than the first gap is present

6 between the portion of the abutting end face of the first joint member positioned radially outwardly
7 of the recessed portion thereof and the portion of the abutting end face of the second joint member
8 positioned radially outwardly of the recessed portion thereof.

1 Claim 9 (previously presented): A pipe joint according to any one of claims 1 to 6 wherein
2 each of the joint members is provided at the abutting end face thereof with a flange portion, and the
3 screw means comprises an annular male screw member having a forward end face in bearing contact
4 with the flange portion of one of the joint members, and a cap nut fitted around the other joint
5 member and having a top wall in bearing contact with the flange portion of said other joint member,
6 the cap nut being screwed on the male screw member.

1 Claim 10 (currently amended): A pipe joint according to claim 9 wherein at least one of a
2 space between the male screw member and the flange portion of said one joint member and a space
3 between the top wall of the cap nut and the flange portion of said other ~~flange~~ joint member has
4 disposed therein a biasing member for biasing one of the joint members toward the other joint
5 member.

1 Claim 11 (original): A pipe joint according to claim 9 wherein an annular clearance is
2 formed inside the cap nut around the flange portions of the joint members and has an annular spacer
3 disposed therein, and at least one of a space between the cap nut top wall and the spacer and a space

4 between the male screw member and the spacer has provided therein a biasing member for biasing
5 one of the joint members toward the other joint member.

1 Claim 12 (original): A pipe joint according to claim 9 wherein a synthetic resin thrust ring
2 is interposed between the cap nut top wall and the flange portion of the joint member.

1 Claim 13 (original): A pipe joint according to claim 12 wherein the thrust ring has an outside
2 diameter larger than the inside diameter of the cap nut, and the cap nut has an annular recess formed
3 in an inner periphery thereof for accommodating an outer peripheral edge of the thrust ring.

1 Claim 14 (new): A pipe joint comprising a first and a second tubular joint member of
2 synthetic resin, a synthetic resin gasket interposed between abutting portions of the joint members
3 and screw means for joining the joint members, the pipe joint being characterized in that the first
4 joint member is provided in an abutting end face thereof with an annular recessed portion having an
5 opening remaining therein with the gasket entirely fitted therein, the second joint member being
6 provided with an annular ridge on an abutting end face thereof, the ridge being fitted in the opening
7 of the recessed portion with the gasket fitted in the recessed portion, an outer surface of the ridge of
8 the second joint member being pressed against an inner surface of the recessed portion of the first
9 joint member with the gasket interposed between the surfaces in intimate contact therewith
10 approximately over the entire surface areas when the pipe joint is properly tightened up, a portion

11 of the abutting end face of the first joint member positioned radially inwardly of the recessed portion
12 being then in intimate contact with a portion of the abutting end face of the second joint member
13 positioned radially inwardly of the ridge approximately over the entire surface areas thereof, a
14 portion of the abutting end face of the first joint member positioned radially outwardly of the
15 recessed portion being then in intimate contact with a portion of the abutting end face of the second
16 joint member positioned radially outwardly of the ridge approximately over the entire surface areas
17 thereof,

18 wherein each of the joint members is provided at the abutting end face thereof with a flange
19 portion, and the screw means comprises an annular male screw member having a forward end face
20 in bearing contact with the flange portion of one of the joint members, and a cap nut fitted around
21 the other joint member and having a top wall in bearing contact with the flange portion of said other
22 joint member, the cap nut being screwed on the male screw member.

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